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APPLICATION NO.	FILING DATE	FIRST NAME INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Please find below and or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/485,187

Applicant(s)

KWART ET AL.

Examiner

Anne R. Kubelik

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1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 17 October 2002 and 21 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-14 and 16-37 is/are pending in the application.
- 4a) Of the above claim(s) 4,6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-3, 5, 8-13, 16-25 and 27-36 is/are rejected.
- 7) ☐ Claim(s) 14,26 and 37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 21 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

1. The amendments to claims 1 and 8-13, the cancellation of claim 15, and the addition of claims 16-37 requested in Paper No. 17, filed 17 October 2002, have been entered.
2. The substitute specification filed 17 October 2002, has been entered, as have the amendments to the title, the abstract, and pg 11-12. The amendment to pg 3 was not entered because a full replacement paragraph was not submitted. It is noted however, that such an amendment to that paragraph would result in a new matter rejection because deleting information alters the invention as Applicant envisioned it.

The new rules for making amendments require that amendments to the written description of the specification be made by way of a clean replacement paragraph or section and for amendment to the claims by way of clean replacement claims. *See* 37 CFR 1.121(b)(1)(i) and (ii), 1.121(b)(2)(i) and (ii), and 1.121(c)(1)(i) (2001). The new amendment practice also requires a marked up version of the replacement paragraph, section or claim showing the changes vis-a-vis the prior paragraph, section or claim (respectively). *See* 37 CFR 1.121(b)(1)(iii), 1.121(b)(2)(iii), and 1.121(c)(1)(ii) (2001).
3. This application contains claims 4 and 6-7 and enzymes drawn to inventions nonelected with traverse in Paper No. 9. A complete reply to the final rejection must include cancellation of nonelected claims and enzymes or other appropriate action (37 CFR 1.144). *See* MPEP § 821.01.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Response to Amendment***

5. The rejection of claim 15 under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, *i.e.*, results in a claim that is not a proper process claim under 35 U.S.C. 101 is obviated by its cancellation.
6. The objection to claim 8 for being dependent upon non-elected claims is WITHDRAWN in light of its amendment.
7. The objection to claims 9 and 11 are objected to because of informalities is WITHDRAWN in light of their amendment.

***Claim Objections***

8. Claims 14, 26 and 37 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

The rejection over claim 14 is repeated for the reasons of record as set forth in the Office action mailed 23 May 2002. Applicant's arguments filed 17 October 2002 have been fully considered but they are not persuasive. Applicant urges that claim 14 was amended (response pg 10). This is not found persuasive because claim 14 was not amended.

9. Claims 11, 22-24, 33 and 35 are objected to because of the following informalities:

There should be a comma before "wherein" in line 1 of claims 11 and 23.

There is an improper article before "recombinant" in line 1 of claims 22, 24, 33 and 35.

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***Claim Rejections - 35 USC § 112***

10. Claims 1-3, 8-13, 16-18, 20-25, 27-29 and 31-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office action mailed 23 May, 2002, as applied to claims 1-3, 5 and 8-15. Applicant's arguments filed 17 October 2002 have been fully considered but they are not persuasive.

Applicant urges that the invention is directed to a process for increasing the yield of plants and a recombinant constructs used in the method. Applicant urges that components of the construct are not new, and that any companion cell promoter or nucleic acid encoding a sucrose transporter can be used. Applicant urges that one of skill in the art would be able to identify regions that direct expression in companion cells (response pg 12-13).

This is not found persuasive because the specification does not describe any nucleic acid encoding a sucrose transporter other than that from spinach. Applicant should submit a list of sucrose transporter sequences known at the time of filing.

Applicant urges that one of skill in the art would be able to identify regions that direct expression in companion cells (response pg 12-13).

This is not found persuasive. It is noted that this is an argument to an enablement rejection. The specification must describe these sequences within the full scope of the claims.

11. Claims 1-3, 8-13, 16-18, 20-25, 27-29 and 31-36 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of increasing the yield of

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plants by transformation with a construct comprising the rolC promoter operably linked to the sucrose transporter gene from spinach, does not reasonably provide enablement for such a method by transformation with any companion cell specific promoter or any sucrose transporter gene. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The rejection is repeated for the reasons of record as set forth in the Office action mailed 23 May, 2002, as applied to claims 1-3, 5 and 8-15. Applicant's arguments filed 17 October 2002 have been fully considered but they are not persuasive.

Applicant urges that the applicant does not present any new sequence data, but instead combines two known nucleic acid sequences. Applicant urges that it would be routine for one of skill in the art to search databases for nucleic acid encoding sucrose transporters (response pg 13-14).

This is not found persuasive. One of the "sucrose transporter genes" taught by the specification (EMBL Accession No.G21319) is actually a human sequence tagged site. The specification only teaches a sucrose transporter gene from spinach. Applicant should provide a list of nucleic acids encoding full-length sucrose transporters, including those from bacteria and fungi, known at the time of filing.

Applicant urges that the MPEP states that as long as one method is presented for making and using the claimed invention that bears correlation to the entire scope of the claim, the enablement requirement is met and that it is not necessary to disclose other methods. Applicant urges that one of skill in the art would be able to access information in sequence databases (response pg 14).

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This is not found persuasive. The relevant statement to section 2164.01 (b) of the MPEP is "bears a reasonable correlation to the entire scope of the claims". The teachings of the specification do not bear a correlation to the full scope of the claims because only one sucrose transporter gene is taught. The teaching of one sucrose transporter gene does not enable use of any sucrose transporter gene when other sucrose transporter genes are not taught.

12. Claims 1-3, 5, 8-13, 16-25 and 27-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Dependent claims are included in all rejections.

The rejection is repeated for the reasons of record as set forth in the Office action mailed 23 May, 2002, as applied to claims 1-3, 5 and 8-15. Applicant's arguments filed 17 October 2002 have been fully considered but they are not persuasive.

Claims 1-3, 5, 8, 16-20 and 27-31 are indefinite because they lack agreement between the preamble of the methods and the positive method steps. Methods must be circular; the final step must generate the item the method is intended to produce. For example, the method of increasing the yield in a plant in claim 1 ends in integrating a construct into the genome of a plant, when it should end in the production of plants with increased yield. Applicant urges that claim 1-3, 5 and 8 have been amended (response pg 15). This is not found persuasive because the claims were not so amended.

Claim 9 is indefinite in its recitation of "yields". It is not clear which yields are being referred to. It is also not clear if Applicant intends that all possible yields of the plant be

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increased at the same time. Applicant urges that the claim has been amended to recite "yield" (response pg 15). This is not found persuasive because the claim was not so amended.

***Claim Rejections - 35 USC § 103***

13. Claims 1-2, 5, 8-13, 16-17, 19-25, 27-28 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frommer et al (1997, US Patent 5,608,146) in view of Kuhn et al (1996, Plant Cell Environ. 19:1115-1123). The rejection is repeated for the reasons of record as set forth in the Office action mailed 23 May, 2002, as applied to claims 1-2, 5 and 8-15. Applicant's arguments filed 17 October 2002 have been fully considered but they are not persuasive.

Applicant urges that it is simply wrong that one of skill in the art would know that overexpression of a nucleic acid would have the opposite effect as expression of an antisense nucleic acid. Applicant cites a paper to support this, but did not include the reference. Applicant urges that one of skill in the art would have no expectation of success based on the teachings of the two references (response pg 16-18).

This is not found persuasive. The cited reference could not be considered because it was not sent. Frommer et al already teaches that plants transformed with a construct comprising a sucrose transporter gene from spinach expressed in the sense orientation behind a constitutive promoter have increased yield. Kuhn et al teaches that plants transformed with a DNA construct comprising the companion cell-specific *rolC* promoter operably linked to a sucrose transporter gene in the antisense orientation have reduced yield (abstract). The effect taught by Kuhn et al is the opposite of the effect taught by Frommer et al. Kuhn et al attribute the reduced yield to



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antisense expression of the sucrose transporter gene, not to the companion cell promoter (pg 1120, right column, paragraph 1). Thus, companion cell promoters do not act unexpectedly. Thus, given the combined teachings of these two references, one of ordinary skill in the art would expect that sense expression of a sucrose transporter from a companion cell promoter would result in increased yield.

See *In re Lindner*, 173 USPQ 356 (CCPA 1972) and *In re Grasselli*, 218 USPQ 769 (Fed. Cir. 1983), which teach that the evidence of nonobviousness should be commensurate with the scope of the claims.

14. Claims 3, 18 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frommer et al in view of Kuhn et al as applied to claims 1-2, 5, 8-13, 16-17, 19-25, 27-28 and 30-36 above, and further in view of Leggewie et al (US Patent 6,025,544, 102(e) date July, 1997). The rejection is repeated for the reasons of record as set forth in the Office action mailed 23 May, 2002, as applied to claim 3. Applicant's arguments filed 17 October 2002 have been fully considered but they are not persuasive.

Applicant refers to the argument against Frommer et al in view of Kuhn et al and urges that because one of skill in the art would have no expectation of success using the SUT1 transporter they would have no expectation using a bacterial sucrose transporter (response pg 18-19).

This is not found persuasive for the reasons indicated above.

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*Conclusion*

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (703) 308-5059. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (703) 306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at (703) 308-0198.

Anne R. Kubelik, Ph.D.  
March 26, 2003

DAVID T. FOX  
PRIMARY EXAMINER  
GROUP 180-1638

